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EXAMINER	
VIDA, MELANIE M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/487,586	Applicant(s) MESTHA ET AL.	
	Examiner Melanie M Vida	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 January 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2, 3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement(s) (IDS) submitted on 6/14/01, and 8/4/03 have been considered by the examiner and is attached to this office action.

2. The information disclosure statement filed 9/4/03 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because a copy of US Application No. 09/487,587 was not provided. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Specification

3. The disclosure is objected to because of the following informalities:

Please revise, "incorporated 202, 203, or 114 patent applications" with the corresponding patent number, 6,236,474, 6,157,469, or 6,052,195, respectively, (pg. 12, line 22, pg. 14, line 22, pg. 15, line 22; pg. 16, line 5).

Appropriate correction is required and throughout the specification.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

The specification states that the switch is 260 in figure 2, however, the label, 260, is missing in the drawing, (pg. 14, line 16).

The specification states that "If, in step S140, the difference has not reached the predetermined value, control advances to step S145. Otherwise control jumps to step S155", (pg. 16, lines 18-20). However, figure 3 illustrates that control jumps to step S160 if the difference has reached a predetermined value. Hence there is a misrepresentation in labeling the decision block, S160 in figure 2, and S155 in the specification when the control has reached a predetermined value.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following:

Reference characters "$R_T(\lambda)$" and "P" have both been used to designate the output from the color image data source (201) in figure 2, (pg. 9, lines 25-29; pg. 14, lines 1-3).

Reference character "β_o" has been used to illustrate both the output from the color controller (220) and the output from the second memory (250) in figure 2. However, the

specification teaches that "β_o" is used to designate the output vector of the color controller (220), (pg. 15, line 7).

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

* Therefore, the "parameter vectors after processing the errors and the parameter vectors" must be shown or the feature(s) canceled from the claim(s), (figures 1-2; claim 8, line 16). MV

* Therefore, the "spectrally matched color outputs" must be shown or the feature(s) canceled from the claim (s), (figures 1-2; claim 9, lines 12-13). MV

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, 9- 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural

cooperative relationships are: The device and illumination independent color reproduction system does not claim the structural relationship for interconnecting or coupling of the color image data source, the color marking device, a color controller, a memory, a first processing circuit, and a second processing circuit, an image parameter mapping look-up table that translates the color image parameters to a device independent color space, and a device dependent color space.

Claims 2-3 recites *inter alia*, "The device and illumination independent color reproduction system ... including an image parameter mapping look-up table that translates the color image parameters ...", (lines 2-3). After reviewing the specification, the claims remain MV unclear as to the memory storage (250), (225), (125) location of the reference reflectance spectra, and of the two embodiments, which embodiment is claimed in claims 2 and 3. For example, the applicant teaches in the second embodiment that the second memory (250) and the memory (225) in figure 2, both contain an image parameter look-up table, (pg. 13, lines 10-12; pg. 14, lines 4-5).

Claims 6-7 recites the limitation "color control system" in line 1. There is insufficient antecedent basis for this limitation in the claim. It appears that the color control system refers to a color controller in claim 1. MV

Claim 8 recites the limitation "the parameter vectors" in pg. 19, line 11. There is MV insufficient antecedent basis for this limitation in the claim. It is unclear which parameter vector is claimed, the reference parameter vector, or the measured parameter vector, (pg. 19, lines 1-11).

Claim 9 recites the limitation "the parameter vectors" in line 12. There is insufficient antecedent basis for this limitation in the claim. It is unclear which parameter vector is claimed, the reference parameter vector, or the measured parameter vector, (line 4, line 8).

Claims 9-27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: Steps 140-155 and Steps 140-170, in figure 3, are omitted from the generalized statement of claim 9, "processing the error vector and the parameter vectors to produce spectrally matched color outputs", (claim 9, lines 12-13).

Claims 10 and 19 are not supported in the specification. The claims statement "... storing the reference reflectance spectra in a look-up-table" is not supported in the specification. The specification states, "...a memory located in a color data image source (101) or in a memory in the processing circuit (110) stores the reflectance spectra...", (pg. 10, lines 1-4). However, it does not provide support for storing in a look-up table, (pg. 9, lines 30-33 and pg. 10, 1-4).

Claims 24-25 are not supported in the specification. The claims state "...converting the measured reflectance spectra ... includes using only three parameters in the parameter vector per spectra from one of the standard CIE, XYZ, or L* a* b* color spaces" and "...more than three parameters...". The specification states "...the reference spectra $R_T(\lambda)$ is converted into the reference parameter vector β_T as outlined below. This approach uses only three parameters in the parameter vector per spectra... more than three parameters...", (emphasis added), (pg. 10, lines 13-17). Here, the specification supports the conversion with 3 parameters and more than 3 parameters for the reference reflectance spectra, rather than the measured reflectance spectra as recited in the claims.

Claims 1-27 do not represent the structural relationship of the color marking device, a color controller, memory, a first processing circuit, a second processing circuit, a color sensor as shown in figures 1-2, and as described in the specification. MU

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 8-10, 12, 14-16, 21, 23-25** are rejected under 35 U.S.C. 102(b) as being anticipated by Ueda (USP 5,664,072; hereinafter, Ueda).

Regarding, **claim 8,** Ueda teaches as shown in figure 5, an overall block diagram of a method for improving color production, and in the third embodiment of the invention, as shown in figure 22, a block diagram of a color conversion device (11), printer (12), print medium (13), input device (10), a coefficient determination device (215), and all the elements therein, which reads on "an apparatus for improving color reproduction", (col. 5, line 63 through col. 6, line 14; col. 20, lines 7-8).

A color correction device (211), which reads on "a first processing circuit", accepts color input data from an input device (10) and corrects this data through a color correction portion (211b), and a mask-storing portion (211a), which reads on "that converts a reference color spectra into a reference parameter vector".

Further, color conversion device (11), which reads on "a color controller", includes a mask storing portion (212a), a color conversion data memory (212a), a color correction portion (211b) and a color conversion portion (212b), which reads on "that converts the reference parameter vector to a processed reference parameter vector", (col. 20, lines 43-39).

The system printer (12) prints, which reads on "a color-marking device that prints an image based on the processed reference parameter vector" (col. 20, lines 10-12; lines 63-65; col. 22, lines 52-58).

A colorimeter (216) provides color information for color processing, which reads on "a color sensor that measures reflectance spectra of the image printed based on the processed reference vector", (col. 20, lines 10-12; lines 63-65; col. 22, lines 52-58).

Ueda teaches of a coefficient determination device (215), as shown in figure 23, which reads on a "second processing circuit", that converts the measured print data from a color sensor (216) into color image data compatible with a color correction device (211), which reads on "that converts a measured color spectra into a measured parameter vector".

Ueda teaches the color difference data vector **E** between the input sample color and the measured printed sample color is outputted to the color correction device (211), which reads on "a color controller that compares the reference parameter vector with the measured parameter vector", (col. 26, lines 59-66). The device (211) squares the difference data **E** for each color sample, adds the results, and obtains a measure of how the outputted sample colors are shifted from the inputted sample colors, which reads on "and produces, if the color controller determines that the reference parameter vector is not within an acceptable range of equivalents to the corresponding measured parameter vector", (col. 27, lines 5). The color correction device (211)

changes the color correction coefficient matrix **M** from the first trial matrix $\mathbf{M_1}$ to a second trial matrix $\mathbf{M_2}$ and repeats until the trial matrix $\mathbf{M_n}$ is selected from the n-trials that produces the smallest sum value error $\sum \mathbf{E^2}$, judged as the most suitable matrix for correcting the input color data in view of the output color data, which reads on "a compensated description of errors and the parameter vectors after processing the errors and the parameter vectors", (col. 27, lines 9-15; lines 33-36).

Regarding, **claim 9,** Ueda teaches as shown in figure 5, an overall block diagram of a method for improving color production, which reads on "a method for improving color reproduction", (col. 5, line 63 through col. 6, line 14).

The input color data (Li, ai, bi) is supplied from an external source to the input device (10), which reads on "receiving a reference reflectance spectra", (col. 6, lines 4-7).

Further, the set of input color data (Li, ai, bi) is converted via a color conversion device (11) to a set of print control data (CMYK), which reads on "converting the reference reflectance spectra to a corresponding reference parameter vector", (col. 6, lines 7-9).

The set of print control data is outputted to a printer (12) and printed on a recording medium (13), which reads on "printing an image based on the converted reference parameter vector", (col. 6, lines 12-15).

A colorimeter (216), as shown in figures 22-23, measures sample color value data from the recording medium (13), which reads on "measuring the reflectance spectra of the image printed based on the converted reference parameter vector", (col. 23, lines 24-26).

Next, as shown in figure 23, the measured sample data is color converted (220), which reads on "converting the measured reflectance spectra to a corresponding measured parameter vector", (col. 23, lines 62-67)

Next, as shown in figure 23, the input device color data sample is compared, which reads on "comparing the reference parameter vector" with the measured sample color value data, (221), which reads on "to the measured parameter vector" and a color difference calculating portion (225) determines a color difference data **E** between the input and output color data sets, which reads on "to determine an error vector", (col. 25, lines 7-15).

Next, the color difference calculation portion (225), outputs the calculated color difference data, **E,** to the color correction device (211), to correct the output data, which reads on "processing the error vector and the parameter vectors to produce spectrally matched color outputs", (col. 25, lines 16-17).

Regarding, **claim 10,** Ueda teaches that an input color data (Lab) is converted, which reads on "converting reference reflectance spectra", (col. 6, lines 5-7). Further, the input color data (Lab) is stored in a color conversion value memory (34) for all the color conversion values (CMYK), which reads on "includes storing the reference reflectance spectra in a look-up table", (col. 6, lines 26-28; 45-47).

Regarding, **claim 12,** Ueda teaches that the input color values (Lab), which reads on the "reference reflectance spectra", is converted to the CMYK color space, which reads on "includes converting the reference reflectance spectra through a linear transformation", (col. 6, lines 8-11).

Regarding, **claim 14,** Ueda teaches that the input color values (Lab), which reads on the "reference reflectance spectra" is converted to the CMYK color space, which reads on "includes converting the reference reflectance spectra using predetermined algorithms", (col. 6, lines 8-11).

Regarding, **claim 15,** Ueda teaches, as shown in figure 9, that the input color values (Lab) which reads on the "reference reflectance spectra" is converted to (L*i', a*i', b*i') color space, which reads on "using predetermined algorithms includes using only three parameters in the parameter vector per spectra from one of the standard CIE, XYZ, L* a* b* color spaces", (col. 25, lines 30-37).

Regarding, **claim 16,** Ueda teaches, as shown in figure 8, that the input color values (Lab), which reads on "the reference reflectance spectra" is converted to (C, M, Y, K) color space, which reads on "using predetermined algorithms includes using more than three parameters in the parameter vector per spectra", (col. 20, lines 54-58).

Regarding, **claim 21,** Ueda inherently teaches, "...converting the measured reflectance spectra includes converting the measured reflectance spectra through a linear transformation" as evidenced by the corresponding rejection in claim 12.

Regarding, **claim 23,** Ueda teaches that measured reflectance spectra includes converting the measured reflectance spectra using predetermined algorithms such as the HVC conversion portion as shown in figure 23, (220), which reads on "converting measured reflectance spectra includes converting the measured reflectance spectra using predetermined algorithms"

Regarding, **claim 24,** Ueda inherently teaches, "converting the measured reflectance spectra using predetermined algorithms includes using only three parameters in the parameter

vector spectra from one of the standard CIE, XYZ, or L* a* b* color spaces", as evidenced by equation 27, (col. 25, lines 30-37).

Regarding, **claim 25,** Ueda inherently teaches "...using predetermined algorithms includes using more than three parameters in the parameter vector per spectra", as evidenced by conversion characteristic values L, a, b, for CMYK (claim 27, lines 12-18).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 1-3, 6-7,** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, (USP 5,664,072; hereinafter Ueda), and further in view of Edge (USP 5,877,787; hereinafter Edge).

Regarding, **claim 1,** Ueda teaches in the third embodiment of the invention, as shown in figure 22, a block diagram of a color conversion device (11), printer (12), print medium (13), input device (10), a coefficient determination device (215), and all the elements therein, which reads on "a device an illumination independent color reproduction system", (col. 20, lines 7-8). The system printer (12) prints, which reads on "a color-marking device", and a colorimeter (216) provides color information for color processing, which reads on "including a color sensor", (col. 20, lines 10-12; lines 63-65; col. 22, lines 52-58).

Further, color conversion device (11) which reads on "a color controller", includes a mask storing portion (212a) and a color conversion data memory (212a), which reads on "including a memory", and a color correction portion (211b) and a color conversion portion (212b), which reads on "and a controller", (col. 20, lines 43-39).

The color correction device (211), which reads on "a first processing circuit", accepts color input data from an input device (10) and corrects this data through a color correction portion (211b), and a mask-storing portion (211a), which reads on "that converts a reference color spectra into a reference parameter vector".

Ueda teaches of a coefficient determination device (215), as shown in figure 23, which reads on a "second processing circuit", that converts the measured print data from a color sensor (216) into color image data compatible with a color correction device (211), which reads on "that converts a measured color spectra into a measured parameter vector".

Ueda does not expressly disclose "a feed-forward look-up table".

However, Edge teaches of a color transformation LUT (20), as shown in figure 1, which reads on "including a feed-forward look-up table".

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify Ueda's color conversion device (11), with Edge's color transformation LUT (20).

One of ordinary skill in the art would have been motivated to use a feed forward LUT in order to create an automatic device, given the express suggestion of Edge, (col. 7, lines 27-29).

Regarding, **claim 2,** Ueda teaches the color conversion memory (212a) stores a plurality of sets of color conversion values (C', M', Y', K') for the plurality of lattice points of the Lab color space LabZ, which reads on "including an image parameter look-up table that translates the color image parameters to a device dependent color space", (col. 20, lines 43-46).

Regarding, **claim 3,** Edge teaches that a measuring device (42) by a densitometer may require a modified driver to be imbedded in the recalibration software to convert density CMY data or reflectance RGB data into a system independent color space such as XYZ or L*a*b*, which reads on "including an image parameter mapping look-up table that translates the color image parameters to a device independent color space, (col. 7, lines 24-27).

Regarding, **claim 6,** Ueda inherently teaches a color image data source connectable to the first processing circuit, as evidenced by the external source (not shown) connected to the input device (10), and input color data (26) connected directly to the color conversion device (11), as shown in figures 5-6, respectively, (col. 6, lines 4-6).

Regarding, **claim 7,** Ueda teaches that the external data source could be two different scanners or a remotely located computer, which reads on "wherein at least one color image data source is one of a locally or remotely located computer, a personal digital assistant, a scanner, a digital camera, or a facsimile machine", (col. 1, lines 29-33).

12. **Claims 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, (USP 5,664,072; hereinafter Ueda), as applied to claim 9 above, and further in view of Edge (USP 5,877,787; hereinafter Edge).

Regarding, **claim 11,** Ueda teaches the method of claim 9, but fails to expressly disclose, "wherein converting the reference reflectance spectra includes measuring a reflectance spectra of certain critical pixels of the image".

However, Edge teaches as shown in figure 2, the color patches, which reads on "converting the reference reflectance spectra" may be some or all of the color patches formed during the reference setting mode, which reads on "includes measuring a reflectance spectra of certain critical pixels of the image", (col. 12, lines 21-24; lines 40-41).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Ueda's color conversion system with Edge's method to measure critical pixels in an image.

One of ordinary skill in the art would have been motivated to measure critical pixels in an image, in order to calibrate colors that do not lie in the color space.

13. **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, (USP 5,664,072; hereinafter Ueda), as applied to claim 1 above, and further in view of Konishi, (USP 6,046,820; hereinafter Konishi).

Regarding, **claim 4,** Ueda teaches the device and illumination independent color reproduction system of claim 1, but fails to expressly disclose, "the color sensor is mounted in an output paper path of the color marking device".

However, Konishi teaches a printer (2) as shown in figure 1, that comprises a printer engine (22), and a sensor for measuring density (22a), which reads on "the color sensor is mounted in an output paper path of the color marking device", (col. 4, lines 40-42; col. 5, lines 25-32).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Ueda's color conversion device, with Konishi's color sensor.

One of ordinary skill in the art, would have been motivated to use a color sensor in the output path of the color marking device in order to acquire the actual density from the printer (2), to create the grayscale correction table (16), given the express suggestion by Konishi, (col. 4, lines 28-31).

Regarding, **claim 5,** please refer to the corresponding rejection in claim 4.

14. **Claims 13, 17-18, 22, 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, (USP 5,664,072; hereinafter Ueda), as applied to claim 9 above, and further in view of Lin et al. (USP 6,185,004; hereinafter, Lin).

Regarding, **claim 13,** Ueda teaches the method of claim 9, but fail to expressly disclose, "converting the reference reflectance spectra includes converting the reference reflectance spectra through a non-linear transformation".

However, Lin teaches, as shown in figures 3a and 3b, a non-linear transformation between color spaces, which reads on "converting the reference reflectance spectra includes converting the reference reflectance spectra through a non-linear transformation", (col. 8, lines 56-61).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method taught by Ueda, with a non-linear transformation between color spaces, as taught by Lin.

One of ordinary skill in the art would have been motivated to claim a non-linear transformation because this is an inherent property for the transformation of color-spaces, given the express suggestion of Lin, (col. 8, lines 56-57).

Regarding, **claim 17,** Ueda teaches the method of claim 9, but fails to expressly disclose, "converting the reference reflectance spectra using predetermined algorithms includes computing standard X, Y, Z, tristimulus values".

However, Lin, teaches the CIE XYZ space, with LUT, which reads on ""converting the reference reflectance spectra using predetermined algorithms includes computing standard X, Y, Z, tristimulus values", (col. 2, lines 60-63; lines 65-67).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method taught by Ueda, with color conversion predetermined algorithms for computer XYZ values.

One of ordinary skill in the art would have been motivated to use an XYZ predetermined algorithm because it is a device-independent color space, given the express suggestion of Lin, (col. 2, lines 65-67).

Regarding, **claim 18,** Lin further teaches the following color space conversion, Lab -> CMYK, Lab -> XYZ and XYZ -> Lab color space for converting between a device-independent and device-dependent representations, which reads on "converting the reference reflectance spectra using predetermined algorithms includes computing L* a* b* color values", (col. 8, lines 5-8; lines 24-26; lines 40-42; lines 65-67).

Regarding, **claim 22,** please refer to the corresponding rejection in claim 13.

Regarding, **claim 26-27,** Ueda teaches the method of claim 23, but fails to expressly disclose, "converting the measured reflectance spectra includes" ... "using predetermined algorithms includes computing standard X, Y, Z, tristimulus values", (claim 26, lines 2-3), nor "...includes computing L* a* b* color values", (claim 27, lines 1-2).

However, Lin inherenty teaches "converting the measured reflectance spectra includes" ... "using predetermined algorithms includes computing standard X, Y, Z, tristimulus values", (claim 26, lines 2-3), nor "...includes computing L* a* b* color values", (claim 27, lines 1-2) as evidenced by claims 17-18, respectively.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method taught by Ueda, with color conversion predetermined algorithms for computer XYZ values.

One of ordinary skill in the art would have been motivated to use an XYZ predetermined algorithm because it is a device-independent color space, given the express suggestion of Lin, (col. 2, lines 65-67).

15. **Claims 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, (USP 5,664,072; hereinafter Ueda), as applied to claim 9 above, and further in view of Duke et al. (USP 6,344,902; hereinafter, Duke).

Regarding, **claims 19-20,** Ueda teaches the method of claim 9, but does not expressly disclose, "...converting the measured reflectance spectra...":

"...includes storing the measured reflectance spectra in a look-up-table.", (claim 19, line 2).

"...includes measuring the reflectance spectra of certain critical pixels of the image.", (claim 20, line 2).

However, Duke inherently teaches **claim 19**, "...converting the measured reflectance spectra includes storing the measured reflectance spectra in a look-up-table.", as evidenced by the measurement device (900) provides feedback information to the processing devices (200), (400), (500), or the images in the output devices (600), (700), and (800), wherein the image processing devices (200), (300), (400), and (500), contains images storage devices, (col. 5, lines 11-15; col. 7, lines 39-43).

Duke inherently teaches **claim 20**, "...converting the measured reflectance spectra includes measuring the reflectance spectra of certain critical pixels of the image", as evidenced by "the measurement devices measures and provides feedback information that is used to modify subsequent portions of the image with respect to the measurement device, (col. 11, lines 61-65).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Ueda's method with Duke's method.

One of ordinary skill in the art would have been motivated to use Duke's method in order to perform different color transformation for each output device, given the express suggestion of Duke, (col. 5, lines 50-51).

Conclusion

16.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ohneda et al. (USP 6,005,970) an error computing/error adding section for computing an error between predicted values for input colors and output colors for image data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie M Vida whose telephone number is (703) 306-4220. The examiner can normally be reached on 8:30 am 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Melanie M Vida
Examiner
Art Unit 2626

MMV
MMV
October 10, 2003

KAWilliams

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER